1. Absolute Differences

Program Name: Absolute.java   Input File: absolute.dat

When Mary is bored in class, she sometimes likes to play with numbers. One day when Mary was playing with numbers, she wrote down a circular sequence of four non-negative integers and repeatedly took the absolute value of the difference of consecutive integers. To complete the circle, she paired the last integer with the first. Consider the sequence 1, 2, 5, 7. Applying the above algorithm four times results in the sequence containing all twos as shown below.

```
1 2 5 7 >> 1 3 2 6 >> 2 1 4 5 >> 1 3 1 3 >> 2 2 2 2
```

You have decided to write a program that will determine the number of times the algorithm must be applied before all elements in the sequence are equal and what that integer is.

Input
The first line of input will contain a single integer `n` that indicates the number of sequences to follow. Each of the following `n` lines will contain a sequence of four non-negative integers less than fifty that are separated by a single space.

Output
For each sequence input, you will print the number of times the algorithm must be applied before all elements in the sequence are equal followed by a space and what that integer is.

Example Input File
```
3
1 2 5 7
49 7 3 29
15 1 17 9
```

Example Output to Screen
```
4 2
3 16
3 6
```